author that "the foundations of science as a whole and of physics in particular, await their next greatest elucidations from the side of biology, and especially from the analysis of the sensations." The chapters of the book are a connected recapitulation of all that the author has done in psychology which, despite its small volume, is in both contents and method of rare value. As the translator well says: "The matter contained in a book is by no means proportioned to its size. If this were so, the present treatise . . . must be a bulky one."

The principle which is at the basis of the research of the present work is that there are as many physico-chemical neural processes as there are distinguishable qualities of sensation. This is the principle of the complete parallelism of the psychical and physical. Such was Helmholtz's explanation of tone-sensation, etc. To the exposition of this fruitful fundamental principle Professor Mach has devoted a separate chapter. The following chapters are devoted to space and sight sensations, the discussion of the æsthetic sensations of symmetry, sensations of motion, perspective, spatial solidity, etc. The discussions here are extremely original and pregnant with valuable suggestions. Convincing views are advanced in the chapter on "Time-Sensation," while in the section on "Sensations of Tone" we have the suggestion of a new hypothesis which would reduce the many specific energies assumed by Helmholtz to two only. The criticism of the theories of sound-sensation have already contributed, and will in the future contribute, greatly to the elucidation of the relations obtaining in the province of tone. Not the least important chapter in the book is the last on "Physics," where the author shows the influence of his psychological investigations on the altered mode of conception of physics. This chapter is a distinct contribution to the theory of science. Although published eleven years ago, Professor Mach's book is one which by its solidity and the permanent value of its results will never grow old.

We have also to mention briefly the appearance of the second edition of the same author's *Popular Scientific Lectures*. Four new articles have been added to this volume, viz., "The Part Played by Accident in Invention and Discovery," the recent lecture on "Sensations of Orientation," and two brief essays on the history of "Acoustics" and of "Spatial Vision." The same edition will also shortly be increased by an entirely new article on "The Photography of Projectiles," making the augmentation of new matter considerably more than one hundred pages. (Price, $1.00. Fifty Cuts. 382 pages.) *p.*

VERSUCH EINER PHILOSOPHISCHEN SELEKTIONSTHEORIE. Von *Dr. phil. Johannes Unbehaun*. Jena: Gustav Fischer. Pages, 150. Price, 3 Marks.

Dr. Unbehaun has undertaken the task of critically examining the philosophical foundations of the theory of selection viewed as a general method of nature and thought. Darwin's principle has crept into all domains of knowledge and conduct, and so has become invested with an importance extending far beyond the special realm of biology. Dr. Unbehaun, accordingly, strips the theory of selec-

tion of all the overgrowths and accretions which have been gathered about it by its being applied in special fields under special circumstances, and seeks to set forth the theory in its purest and most general abstract form. Every form of it, therefore, must be traced back to a common root, to some ultimate principle, appearing in the end as a piece of purely formal, logical philosophy. To give to his expressions greater exactness, he has employed mathematical theorems throughout, the subject being one which from its quasi-statistical character readily lends itself to such treatment. As to the contents of the little book, we have a brief and general retrospect of the ancient theories of selection, a brief review of its history through Malthus, Darwin, Wallace, Roux, and in some of its more allegorical extensions to the domain of chemistry, astronomy, geology, etc. In the second chapter the author proceeds to the enunciation of a purely deductive theory of selection where he applies mathematical analysis. As the result of all this philosophical and mathematical analysis we have the following, rather empty outcome, which scarcely seems to contain more than is contained in the current definitions of the theory; to-wit:

"By the side of existing adapted forms, that is, forms capable of existence, "there always arise or arose many non-adapted forms, by the side of the prizes in "the lottery of life, many blanks. Only on the submersion of the forms incapable "of existence is the existing degree of average adaptability reached. The principle "of 'progressive' selection presupposes that the newly originating forms should "show as regards already existing forms both conservative and variational tenden-"cies—in which case we have unrestricted progress."

The discussion itself, of course, being conducted with reference to definite facts, is more rich in associations and suggestions than this bald formula. The upshot of the whole book is that evolution is reducible to three principles: (1) a conservative principle; (2) a variational principle; and (3) a principle which makes against retrogression, which principle is essentially selection. Selection with conservation and variation are the condition of unlimited progress. The author finds here the foundations of an evolutionist philosophy which he proposes to develop in a later work. *μ.*

VORLESUNGEN ÜBER DIE MENSCHEN- UND THIERSEELE. Von *Wilhelm Wundt.* Dritte, umgearbeitete Auflage. Hamburg und Leipzig: Leopold Voss. 1897. Pages, 519.

The great value and popularity of Professor Wundt's lectures on Human and Animal Psychology is evidenced by the exhaustion of the second new German edition within the relatively short space of five years. Our readers will remember that the present work of Professor Wundt is a complete re-elaboration of one of his earliest youthful publications (1863) and that although bearing the same title it is practically a new work. The second German edition of the work has been translated into English by Mr. Creighton and Mr. Titchener of Cornell University, and